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- to assist academicians from local and foreign universities, business and industrial sectors, government departments and academic institutions, on publishing research results and studies in the areas of information management, records and archives management, library management and knowledge management through scholarly publications.

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MEASURING SERVICE QUALITY OF UNIVERSITI TEKNOLOGI MARA PUNCAK PERDANA LIBRARY USING LIBQUAL

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Abstract: *This study focuses on library students as a yardstick for determining the level of service quality offered by the library. Academic libraries are facing two major challenges, namely global digital environment, and the increasing competition. Alternative approaches to measure quality emerge in the business sector. Specifically, through marketing research the SERVQUAL has evolved as an instrument in measuring service quality and what customers value as important. Modification of SERVQUAL model applied to measurements LibQUAL the quality of library services. LibQUAL was developed as an instrument to measure quality services by Zone of Tolerance. This instrument determines customers' expectations with the two-gap measures, the gap between the perceived service levels with the minimum service level (Service adequacy gap) and the gap of the perceived service level with the desired service level (Service superiority gap). The main objective of this research were to identify the level of service quality at Perpustakaan Tun Abdul Razak (PTAR) Puncak Perdana Library from customers' perspective and to determine most desired and critical dimension of quality services. Total number of 327 respondents participated, including a sample of 238 postgraduate and 89 undergraduate students of the Faculty of Information Management. The data revealed the different of minimum expectation, perception and expectation existed. The findings of this research was determined by the dimension that the "library as the place" as the most critical factor required for improvement across all the three dimensions of "LibQUAL" instrument, namely services affect, information control and library as place.*

Keywords: *LibQUAL, SERVQUAL, Service Quality, Library, Quality, Universiti Teknologi MARA, Perpustakaan Tun Abdul Razak*

INTRODUCTION

Assessment of library service quality has been a questionable agenda as, according to (Kennel, 1995 in Nitecki, 1996) traditional measures of collection size, counts of use; number of staff and size of budget was no longer applicable. Nitecki (1996) believed that, measurement of libraries based solely on collections has become obsolete. Library managers should now assess service quality with a new approach that considers users' needs because the library's goal is to meet users' expectations (Calvert, 2001). Applying the customer-oriented instruments becomes increasingly very important.

One of these instruments was LibQUAL, derived from the Gap Theory of Service Quality, and the SERVQUAL instrument. According to Cook, Heath, Thompson and Webster (2003), grounded in the constructs of discrepancy theory, the SERVQUAL protocol itself applied a singular rule: through a series of 22 questions and the SERVQUAL instrument undertakes to measure the delivery of service quality across the following five dimensions:

- i. reliability;
- ii. assurance;
- iii. empathy;
- iv. responsiveness; and
- v. tangibles.

It has been established as in defining the service quality construct (Cook et al., 2003). LibQUAL was a web-administered library service quality assessment protocol that has been used around the world in hundreds of different types of libraries (Thompson et al., 2006). Specifically SERVQUAL measurement (developed by A. Parasuraman, Valarie A. Zeithaml and Leonard L. Berry, 1988) was widely adopted by academic libraries in the USA (Nitecki and Hernon, 2000). The other popular library service quality measurement tool was LibQUAL, developed using the SERVQUAL methodology (Lincoln, 2002) and widely used in the USA, Canada and Europe.

In this study, LibQUAL was used to examine the library service quality in the dimensions of service affect, information control and library as place of Tun Abdul Razak Library (PTAR) Puncak Perdana. PTAR Puncak Perdana was established in 2009 and has developed its infrastructure and managed by three professional librarians. However, services provided by the library was less adequately satisfied by

users, based on a number of complaints related to service quality that the university provided. For example, in Grinnel College Library (2007), there was complaint, regarding staff not giving professional services, particularly at the counter "help desk," the failure staff to provide timely information as required and those staff who were not approachable and helpful towards users in meeting their information needs. Additionally, library users were also less satisfied with the collection of journals, books, audio visuals, as well as the CDs and unsatisfactory Inter Library Loan (ILL) serve, and library websites were not user-friendly. Jean & Alexander (2002) stated that the position of library was not strategic as it is not accessible to encourage users to go to library. The aim of the PTAR Puncak Perdana is to support library and information services to the UiTM community and it plays important roles in meeting the institutional goals which are education, training, and research. Hence, this study acts as a catalyst to measure the quality of library services based on the expectation of its intended users based on LibQUAL instrument.

LibQUAL is based on the Gaps Model and described by Hernon (2002) as a way to measure customer perceptions of service quality by identifying gaps, or differences between customer expectations and customer perceptions of service. According to Zaherawati & et al. (2009) the service quality is very important to be practiced in academic library services because the users' satisfaction is based on the quality of services that they receive. The concept of service quality in a library was defined as the difference between library user's expectations and perceptions towards service performance (Mehran and Mostafa, 2008). Several studies, however, questioned the applicability of SERVQUAL dimensionalities to library services. For example, Edwards and Browne (1995) suggested that SERVQUAL's five dimensions may not hold for information services in a university library. They noted that dimensions should also address "technological features of service." In another study, Nitecki (1996) examined the applicability of SERVQUAL dimensions to a university library service through exploratory factor analysis. Examining three aspects of library service (i.e. interlibrary loan, reference, and reserve services), she found only three dimensions. The only dimension which showed SERVQUAL's original dimensionality was tangible, and the items of reliability and responsiveness were identified with other items, assurance and empathy. She thus questioned the validity of establishing dimensions in the assessment of university library service quality.

The LibQUAL+™ questionnaire aims to understand how users think about and evaluate library service quality. It is based on the idea that, if we want to improve libraries, we need to build upon a framework of users' perceptions and expectations (Kyrillidou and Hipps 2001). The main purpose of the LibQUAL+™ tool is to provide libraries with a standardized, effective method to measure the quality of library services based on the perceptions of faculty, students and staff. LibQUAL+™

measures library users' perceptions of service quality and it addresses three service quality dimensions that have been found to be valid in previous assessments of library services. Noted that the term of "service affect" and "affect of service" are the same thing with the same meaning only that the jargons used are not the same. Table 1 shows application of LibQUAL in academic libraries measure service quality.

Table 1: *Application of LibQUAL in Academic Libraries to Measure Service Quality adapted from Siti Fatimah (2008)*

Years	Universities
LibQUAL 2000	University of Texas, Austin
LibQUAL 2001	Washburn is a Carnegie Master's University
LibQUAL 2002	McGill University Libraries
LibQUAL 2003	Thamassat University
LibQUAL 2004	University Park Student
LibQUAL 2004	The Penn State University
LibQUAL 2006	University of Notre Dame
LibQUAL 2006	George Mason University Libraries
TQM in Library 2006	Gulbarga University

Measurement of service quality by using LibQUAL was one of the alternative methods to ensure whether the service provided by PTAR was achieved as what user expected from the library. It is based on the concept of service quality in the library, and was defined as the difference between library user's expectations and perceptions towards service performance (N.Mehran and Mostafa, 2008). Based on this definition, the service quality is about what academic library users received from academic library services that lead to their behavior and satisfactory towards the services, whether it is good or bad. Moreover, (Quinn, 1997) states, that "the means by which the library can justify its contribution is by delivering excellent user

services.” Hence, it must have an approach to measure the library services’ performance in the frame of expected by their intended users.

PROBLEM STATEMENT

Library is the “heart” of an academic institution and is expected to fulfill its role as a service provider in terms of education, training, research and community service. In order to meet these objectives, the library needs to satisfy it’s users’ needs. In this way, it will meet the needs of the institution, based on the strategic goals and objectives. Furthermore, the library is an important contributor to the vision, mission and goals of UiTM. This means that the library needs to demonstrate how well it is doing and the extent to which users benefit from the library services (De Jager, 2002).

The TAR Puncak Perdana Library aims to provide high quality library and information services to a user, and it needs to determine whether it is reaching its aims and objectives. One way in which this can be achieved is through assessment and according to (Ebbinghouse, 1999) “few libraries exist in a vacuum, accountable only to themselves. A larger context for assessing library quality, that is, what and how well does the library contribute to achieve the overall goals of the parent constituencies?”

Services provided by the library were regarded as not satisfactory and this calls for further improvement towards quality services. As stated by Siti Fatimah (2008) and Mohd Nazrul & Shahabudin (2008), there is a problem in meeting users’ expectation on library services as these users come from different social, information needs, and academic background.. In addition, according to Shaheen (2001), quality services need research from day to day because of increasing growth of students enrolment year by year. However, students’ expectation on services may be different and change, and this needs a concerted action from the library. Thus, this quality concept referred to satisfaction perspective of users in terms of effective way getting the services provided by the library. The application of quality concept can be achieved when the customers’ desire that the effective use of the facilities or services will be fulfilled, and their satisfaction has achieved Maizan Baba & Hishamuddin Mohd. Ali (2005).

Norliya & Khasiah (2009) have done a study, based on users’ perceptions on the contributions of UiTM libraries in creating a learning environment and one of the libraries involved was PTAR Puncak Perdana Library. The results of the study revealed that the library users were only quite satisfied with the services, collection/information, and activities of the library as a whole. The findings also showed that

users were least satisfied with the attitude of the library staff compared with other aspects of the library evaluation. Further study is needed in order to evaluate the library service quality, as the result of dissatisfaction by library users.

The mission of the PTAR Puncak Perdana is to improve library services through physical resources, knowledge management and current technology in support of learning and research through delivery of quality services and conducive environment for UiTM communities, how PTAR knows which one of the services is crucially needed to be improved? According to Ashok Kumar Sahu (2006) traditionally the quality of an academic library has been described in terms of its collection and measured by the size of the library holdings and different measures of its use. However, this traditional method no longer fulfills the goals for successfully meeting the user's demands for information. The time has now come to evaluate the quality and significance of library service through LibQUAL.

OBJECTIVES OF STUDY

This study attempted to achieve the following goals:

- i. to determine the level of library service quality satisfaction by PTAR Puncak Perdana, based on the perceptions' minimum, desired and perceived service level of post-graduate and undergraduate students' Faculty of Information Management in three main dimensions of LibQUAL, which were service effect, information control and library as a place
- ii. to identify the undergraduate and post graduate student's general satisfaction level on services by PTAR Puncak Perdana Library
- iii. to determine the most critical library service and the most critical dimension of library service quality for postgraduate and undergraduate students of Faculty of Information Management.

METHODOLOGY

The target population of this study was the postgraduate and undergraduate students Faculty of Information Management at Universiti Teknologi Mara (UiTM). The sample for the study was comprised of 327 postgraduate and undergraduate students, from the total number of undergraduate and postgraduate population of 2114 students.(Faculty of Information Management,2013). They were selected, based on the random sampling principle. The samples were randomly selected from among post graduate and undergraduate students from both genders at the Faculty of Information Management, UiTM Puncak Perdana. The advantages of a random sampling method are that, the result can be analyzed by faculty-wise and student-wise, drawing certain conclusions from each category of respondents. The scope of

the study focuses on library services quality measurement, based on the minimum expectation, desired level quality and quality perceived by students towards three dimensions include, service affect, information control and library as a place based on LibQUAL instrument.

A survey method was used to carry out the study. Questionnaire design was based on LibQUAL instrument of Davis & Kyrillidou (2009) in *Procedures Manual of LibQUAL*. There were 34 questions in the questionnaire for the students to complete 33 were closed-ended questions, and one was open-ended question. The questionnaire design was based on the LibQUAL conceptual model and there were 22 statements that seek to measure three dimensions; which are service affect, information control and library as a place. After SERVQUAL was rigorously re-grounded for academic libraries through a meticulous qualitative phase (Cook and Heath 2001), the LibQUAL instrument of 22 questions emerged to evaluate the construct of service quality in a library environment. The collected data from undergraduate and post graduate students were coded into the Predictive Analytics Software, also well known as Statistic Package for Social Science (SPSS) version 16.0. Initially, descriptive statistics such as mean, median, and the standard deviation from each variable was run to get overall view of responses from the respondents. Methods of analysis that were used in this survey were descriptive, frequency and gap analysis. Descriptive analysis can extract the mean value in order to calculate for analyzed the gap analysis (Zone of Tolerance). The last analysis is reliability analysis to determine reliability of the results by using coefficient (cronbach’s) alpha.

FINDINGS

Demographic Information

The demographics information of respondents analyzed from Part A of questionnaires.

Table 2:Gender of Respondents and Programmes

Gender	PROGRAMMES								Total
	IM220	IM221	IM222	IM223	IM780	IM770	IM772	IM771	
Female	80	31	32	58	1	31	31	9	273
	29.3%	11.4%	11.7%	21.2%	.4%	11.4%	11.4%	3.3%	83.49%
Male	10	14	5	8	0	6	11	0	54
	18.5%	25.9%	9.3%	14.8%	.0%	11.1%	20.4%	.0%	16.51%
Total	90	45	37	66	1	37	42	9	327

Gender	PROGRAMMES								Total
	IM220	IM221	IM222	IM223	IM780	IM770	IM772	IM771	
Female	80	31	32	58	1	31	31	9	273
	29.3%	11.4%	11.7%	21.2%	.4%	11.4%	11.4%	3.3%	83.49%
Male	10	14	5	8	0	6	11	0	54
	18.5%	25.9%	9.3%	14.8%	.0%	11.1%	20.4%	.0%	16.51%
	90	45	37	66	1	37	42	9	327
	27.5%	13.8%	11.3%	20.2%	.3%	11.3%	12.8%	2.8%	100.0%

Table 2 shows the relationships between genders of the students from different programmes. From the total number of respondents of 327, 273 (83.49%) were female, while 54 (16.51%) were from male. The largest number of respondent was from (Library and Information Management) IM220 programme and the smallest respondent group was IM780. Table 5.1 clearly shows the top four respondents were from programmes IM220 (27.5%), (Resource Centre Management) IM223 (20.2%), (Information System Management) IM221 (13.8%), thirty one respondents from the Msc Information management (IM770), (11.4%).and IM772 (12.8%).

Library Service Quality Satisfaction

Data is analysed to determine the level of library service quality satisfaction by PTAR Puncak Perdana, based on the perceptions' minimum, desired and perceived service level of post-graduate and undergraduate students' Faculty of Information Management in three main dimensions of LibQUAL, which were service effect, information control and library as a place. In questionnaires the section was in part B of questionnaires. All of these dimensions were represented by 22 statements/ items of LibQUAL.

This part aims to analyze the mean score of the minimum, desired and perceived level service of 22 LibQUAL items for undergraduate, post graduate students and both groups. This data analysis was important to indicate the minimum, desired and perceived level of service that the particular group would find acceptable. Table 3 represents the minimum level library service, Table 4 represents the desired level library service and lastly was table 5 presents the desired level from postgraduate and undergraduate respondents.

Table 3: Analysis of Mean Score of the Minimum Services Level of 22 LibQUAL items for Both Groups (Undergraduate and Post Graduate Students)

Item	Services of PTAR Puncak Perdana	Mean
1	Employees who instill confidence in users	5.91
2	Giving users individual attention	5.96
3	Employees who are consistently courteous	6.19
4	Readiness to respond to users' questions	6.15
5	Employees who have the knowledge to answer user questions	6.23
6	Employees who deal with users in a caring fashion	6.10
7	Employees who understand the needs of their users	6.01
8	Willingness to help users	6.17
9	Dependability in handling users' service problems	6.07
10	Making electronic resources accessible from my home or office	6.16
11	A library Web site enabling me to locate information on my own	6.28
12	The printed library materials I need for my work	6.16
13	The electronic information resources I need	6.43
14	Modern equipment that lets me easily access needed information	6.39
15	Easy-to-use access tools that allow me to find things on my own	6.36
16	Making information easily accessible for independent use	6.13
17	Print and/or electronic journal collections I require for my work	6.12
18	Library space that inspires study and learning	6.31
19	Quiet space for individual activities	6.31
20	A comfortable and inviting location	6.32
21	A getaway for study, learning or research	6.32
22	Community space for group learning and group study	6.40

As shown in table 3, the mean score for each of 22 items in LibQUAL for library services provided by PTAR Puncak Perdana for both groups of respondents is shown. Both groups agreed that the item number 12's (*The printed library materials I need for my work*) have a highest mean score than the other items with the mean score of

6.43. This score is followed by the mean score of the item 22 (*statement of community space for group learning and group study*) with the mean score is of 6.40. It can be concluded that the acceptable service level of both services was higher than the other items and need to give more attention compare to the other services.

Table 4: Analysis of Mean Score of the Desired Services Level of 22 LibQUAL Item for Both Groups (Undergraduate and Post Graduate Students)

Services of PTAR Puncak Perdana	Mean
Employees who instill confidence in users	7.38
Giving users individual attention	7.45
Employees who are consistently courteous	7.43
Readiness to respond to users' questions	7.50
Employees who have the knowledge to answer user questions	7.47
Employees who deal with users in a caring fashion	7.30
Employees who understand the needs of their users	7.45
Willingness to help users	7.46
Dependability in handling users' service problems	7.38
Making electronic resources accessible from my home or office	7.60
A library Web site enabling me to locate information on my own	7.55
The printed library materials I need for my work	7.54
The electronic information resources I need	7.63
Modern equipment that lets me easily access needed information	7.59
Easy-to-use access tools that allow me to find things on my own	7.56
Making information easily accessible for independent use	7.30
Print and/or electronic journal collections I require for my work	7.45
Library space that inspires study and learning	7.69
Quiet space for individual activities	7.67
A comfortable and inviting location	7.65
A getaway for study, learning or research	7.63
Community space for group learning and group study	7.84

Table 4 indicates that the highest mean score of 22 items in LibQUAL statements for library services provided by PTAR Puncak Perdana was item number 18 (Library space that inspires study and learning) with mean score of 7.69. Meanwhile the lowest mean score, which means the less desired services by the user was item number 16 (Making information easily accessible for independent use) with mean score of 7.30.

Table 5: *Analysis of Mean Score of the Perceived Services Level of 22 LibQUAL Items for Both Groups (Undergraduate and Post Graduate Students)*

Services of PTAR Puncak Perdana	Mean
Employees who instill confidence in users	5.54
Giving users individual attention	5.72
Employees who are consistently courteous	6.28
Readiness to respond to users' questions	6.13
Employees who have the knowledge to answer user questions	6.01
Employees who deal with users in a caring fashion	6.19
Employees who understand the needs of their users	5.88
Willingness to help users	6.21
Dependability in handling users' service problems	6.15
Making electronic resources accessible from my home or office	5.93
A library Web site enabling me to locate information on my own	6.61
The printed library materials I need for my work	6.02
The electronic information resources I need	6.50
Modern equipment that lets me easily access needed information	6.42
Easy-to-use access tools that allow me to find things on my own	6.36
Making information easily accessible for independent use	6.39
Print and/or electronic journal collections I require for my work	6.33
Library space that inspires study and learning	6.07
Quiet space for individual activities	6.04
A comfortable and inviting location	6.52
A getaway for study, learning or research	6.10
Community space for group learning and group study	5.48

As illustrated by table 5, most of the surveyed respondents accepted that the three highest mean score of the perceived level were the item number 11(*A library Web site enabling me to locate information on my own*), item number 20 (*A comfortable and inviting location*) and item number 13 (*The electronic information resources I need*). This revealed that PTAR Puncak Perdana have provided a good library website, enough electronic information and have a very strategic location for respondents to go to the library.

On the other hand, both groups agreed that the lowest mean score of the perceived level of services was the item number 22(*Community space for group learning and group study*) with the mean score of 5.48. This might be because users were not satisfied with the inadequate space to conduct a group discussion as the library at the PTAR Puncak Perdana does not provide any discussion room.

Analysis of General Satisfaction

The second objective of this study was to identify the undergraduate and post graduate students’ general satisfaction level on services by PTAR Puncak Perdana.

Table 6: *Overall Students’ General Satisfaction Level towards Services by PTAR Puncak Perdana*

	Library Services General Satisfaction	Mean	Satisfaction Level
1	The library helps me to stay abreast of development in my field (s) of interest	6.42	Satisfy
2	The library aids my advancement in my academic disciplines	6.55	Satisfy
3	The library enables me to be more efficient in my academic pursuit	6.50	Satisfy
4	The library helps me distinguish between trustworthy and Untrustworthy information	6.39	Satisfy
5	The library provides me with information skills I need in my work or study	6.57	Satisfy
6	In general, I am satisfied with the way in which I am treated at the library	6.16	Moderate satisfy
7	In general, I am satisfied with the library support for my learning, research and/ or teaching needs	6.20	Satisfy
8	How would you rate the overall quality of the service provided by the library	6.42	Satisfy

Table 6 represents the overall general satisfaction towards library services provided by PTAR Puncak Perdana. Although the post graduate and under graduate students agreed that the library has provided them with enough information skills they need in their study, both of these groups of respondents showed that they were not satisfied with the way in which they have been treated at the library. The mean score for the overall quality of the service provided by the library for both groups of respondents was 6.42, meaning that they were satisfied with the statement.

Analysis of the most critical library service and the most critical dimension of library service quality

This analysis aims at answering the third research question, “What are the most critical library service and the most critical dimension of library service quality for postgraduate and undergraduate students of Faculty of the Information Management?” The following table shows the mean score of minimum, desired, perceived and quality gap on types of services of LibQUAL dimensions respondents of postgraduate students, under graduate students and overall respondents (postgraduate and undergraduate). In order to evaluate the most critical library services and the most critical dimensions of LibQUAL, it used gap analysis concept whereby to differentiate between user perception on any services and minimum level and desired or expectations level of quality services that they needed. LibQUAL in gap analysis for library service quality were the service adequacy gap and service superiority gap. These were:

a) Service Adequacy Gap

Service adequacy can be calculated by deducting the mean score of perceived and minimum score for each question and group of users. Score of service adequacy is to show the minimum level of library service that is acceptable. Through this formula, the library can evaluate the distance between minimum of quality with perceived service performance. If the mean gap is positive, it means the library has achieved the minimum level of customer expectations.

b) Service Superiority Gap

Service superiority can be calculated by deducting the mean score of perceived and desired for each question and group of users. Score of service adequacy shows the level of services that need be provided by library and the parameter that the library must provide to achieved what customer wants. To define the Zone of Tolerance, each service mean needs to be calculated, based on scale score by customers. The score were based on minimum, perceived and desired library service quality.

Table 7 below indicates the overall LibQUAL service quality showing the “Service Adequacy Gap” to determine a gap between the perceived levels of service with the minimum level of service, while “Service Superiority Gap” determines a gap between the perceived service levels with the desired service level. If negative the results indicate that the level of service was not enough to reach the minimum level of service or desired service level. Three highest gaps determine the service, not reached its minimum level where items number 22, 1 and 19, with “Service Adequacy

Gap” level were -0.92, -0.37 and -0.27 representative. Both groups agreed that the three highest level services which were over the level of minimum where items number 11, 16 and 17.

Services of PTAR Puncak Perdana		Minimum	Desired	Perceived	Service Adequacy Gap	Service Superiority Gap
Service Affect						
1	Employees who instill confidence in users	5.91	7.38	5.54	-0.37	-1.84
2	Giving users individual attention	5.96	7.45	5.72	-0.24	-1.73
3	Employees who are consistently courteous	6.19	7.43	6.28	0.09	-1.15
4	Readiness to respond to users' questions	6.15	7.50	6.13	-0.02	-1.37
5	Employees who have the knowledge to answer user questions	6.23	7.47	6.01	-0.22	-1.46
6	Employees who deal with users in a caring fashion	6.10	7.30	6.19	0.09	-1.11
7	Employees who understand the needs of their users	6.01	7.45	5.88	-0.13	-1.57
8	Willingness to help users	6.17	7.46	6.21	0.04	-1.25
9	Dependability in handling users' service problems	6.07	7.38	6.15	0.08	-1.23
	Information Control					
10	Making electronic resources accessible from my home or office	6.16	7.60	5.93	-0.23	-1.67
11	A library Web site enabling me to locate information on my own	6.28	7.55	6.61	0.33	-0.94
12	The printed library materials I need for my work	6.16	7.54	6.02	-0.14	-1.52
13	The electronic information resources I need	6.43	7.63	6.50	0.07	-1.13
14	Modern equipment that lets me easily access needed	6.39	7.59	6.42	0.03	-1.17

14	Modern equipment that lets me easily access needed information	6.39	7.59	6.42	0.03	-1.17
15	Easy-to-use access tools that allow me to find things on my own	6.36	7.56	6.36	0	-1.2
16	Making information easily accessible for independent use	6.13	7.30	6.39	0.26	-0.91
17	Print and/or electronic journal collections I require for my work	6.12	7.45	6.33	0.21	-1.12
	Library as Place					
18	Library space that inspires study and learning	6.31	7.69	6.07	-0.24	-1.62
19	Quiet space for individual activities	6.31	7.67	6.04	-0.27	-1.63
20	A comfortable and inviting location	6.32	7.65	6.52	0.2	-1.13
21	A getaway for study, learning or research	6.32	7.63	6.10	-0.22	-1.53
22	Community space for	6.40	7.84	5.48	-0.92	-2.36

Table 7: Mean score of Minimum, Desired, Perceived and Quality Gap on Types of Services of LibQUAL Dimensions Respondents of Unergraduate and Postgraduate Students

Table 8 and figure 1 (bar chart) show the summarization of the Minimum, Desired, Perceived and Quality Gap on each of LibQUAL Dimensions for postgraduate and undergraduate students based on service affect information control and library as place.

Dimensions	Minimum	Desired	Perceived	Service Adequacy Gap	Service Superiority Gap
Service Affect	6.09	7.42	6.01	-0.08	-1.41
Information Control	6.25	7.53	6.32	0.07	-1.21
Library as Place	6.33	7.70	6.04	-0.29	-1.65

Table 8: Mean of Minimum, Desired, Perceived and Quality Gap on each of LibQUAL

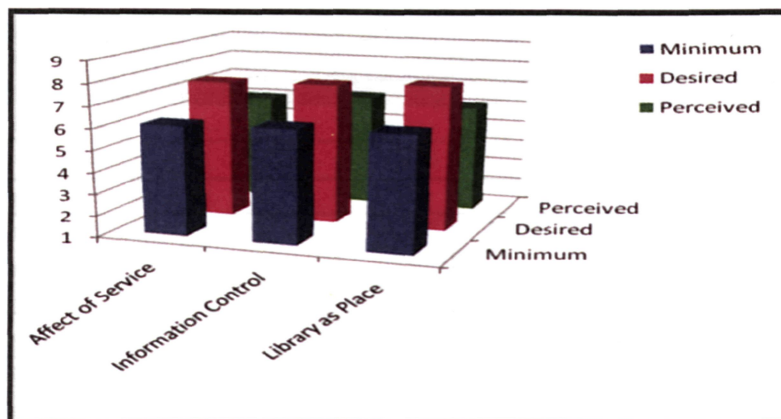


Figure 1: Bar Chart of Mean Score of the LibQUAL Dimensions Postgraduate and Undergraduate Students

Based on the above table 8 and figure 1 from the perspective respondents of postgraduate and undergraduate students, the most critical dimension and the most needed improvement was the dimension of the library as a place as it indicated the highest gap of both Service Adequacy Gap and Service Superiority Gap with the mean score were -0.59 and -1.88 among other dimensions. These were followed by service affect and information control LibQUAL dimensions.

As indicated by the data in table 7, the mean score for the minimum, desired and perceived level revealed the two-gap quality. It shows that the "service superiority gap" (perceived – desired) for all statements in each type of services provided by the library is negative. It means that the level of service quality is not satisfying the respondents' expectations (desired). However, "service adequacy gap" (perceived–minimum) is positive. As a conclusion, library quality services do not fulfill respondents' expectation (desired) and most of the library service are not able to reach the level of minimum expectation of its customers. PTAR Puncak Perdana library needs to improve their library services and gives it top priority to the library as a place dimension followed by service affect, and the last was information control LibQUAL dimension.

Zone of Tolerance of 22 LibQUAL items and the zones of tolerance for the different dimensions in the LibQUAL study

This radar chart (figure 2) shows the aggregate results of the core survey questions. Each axis represents one question. A code to identify each question was displayed at the outer point of each axis. This radar chart they were grouped into sections: service affect, library as place, and information control. The service is not within the tolerance zone when the actual or perceived service score goes under the score of minimum service level. To identify the zone of tolerance, the mean values of the three service levels, i.e. minimum, perceived and desired services are compared by individual group and all users.

- Zone of tolerance
 - Perceptions vs. expectations
 - Meeting users' minimum expectations
 - Approaching users' desired expectations

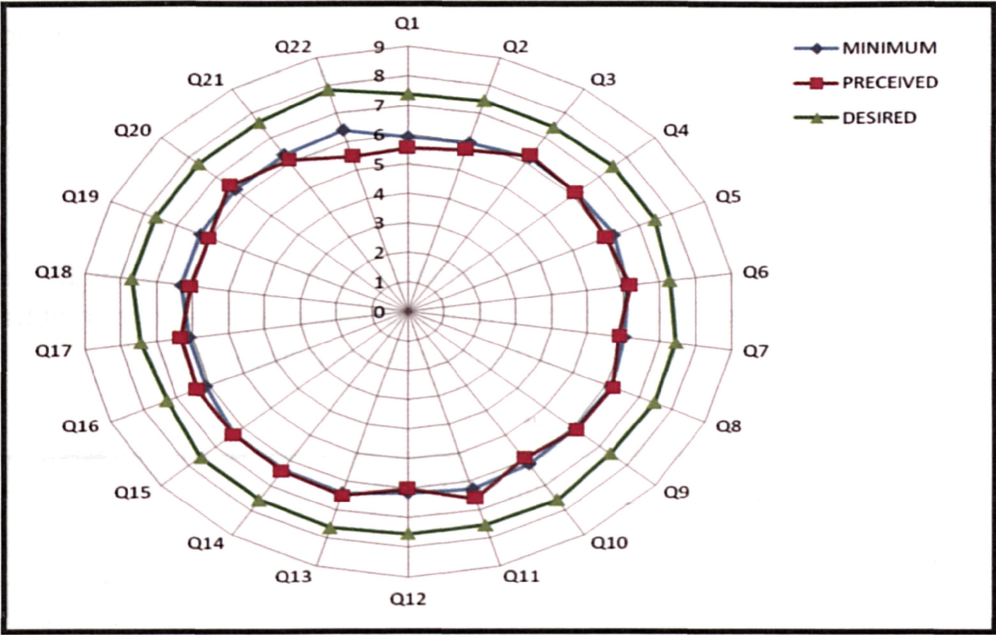


Figure 2: Zone of Tolerance in the Form of Radar Chart Represent LibQUAL score for 22 items

Figure 2 shows the zone of tolerance in the form of the radar chart, representing LibQUAL score for 22 items representing three dimensions of services affect, information control and library as place for all users. This figure shows the overall range between the minimum level, perceived level and desired level. Basically, based on the results, there were no services that reach the desired level of services required by users. The chart also indicates the level of perceived services was placed

outside of distance between minimum and maximum users' expectations. The service is not within the tolerance zone when the actual or Perceived Service score goes under the score of Minimum Service Level. There are 10 items: 1 (Employees who instill confidence in users), 2 (Giving users individual attention), 55(who have the knowledge to answer user questions), 7 (Employees who understand the needs of their users), 10 (Making electronic resources accessible from my home or office), 12 (The printed library materials I need for my work), 18(Library space that inspires study and learning), 19 (Quiet space for individual activities), 21(A getaway for study, learning or research), 22(Community space for group learning and group study) outside zone of tolerance. In other words, library performance did not complete the users' expectations and must make more reforms. This figure shows four levels of users' expectations and level of perceived services in each of the propositions of LibQUAL model in the total sample. It can be concluded that library space was not appropriate for mass communication, learning and study group as quoted item 22 that this item was the lowest from its zone of tolerance. In this section, perceived services are not resolving the minimum users' expectations. The data revealed that library needs to give more attention to the creation of quiet places for individual activities (item 19). The radar chart shows that library managers should create an appropriate space for group and individual activities for satisfying users in the best possible way. Moreover, the library must improve all the items that were not located in zone of tolerance.

The next figure describes the Zone Of Tolerance each of the LibQUAL Dimensions, including services affect, information control and library as place in form of bar chart with indicator of a red circle indicates the mean score perceived level.

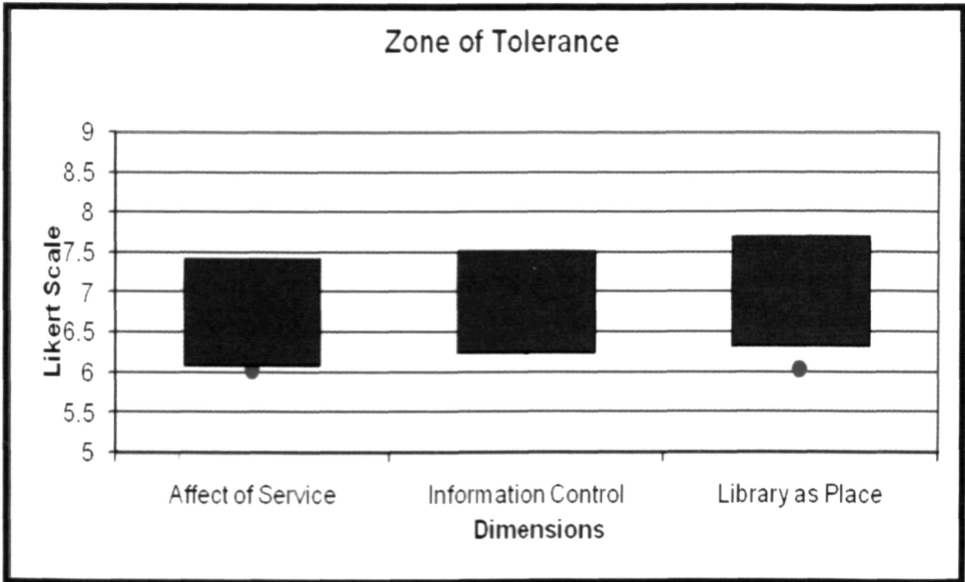


Figure 3: Zone of Tolerance Based on LibQUAL Dimensions

Figure 3 above shows the zone of tolerance of three LibQUAL dimensions, the blue bar represents the zone of tolerance for its dimension. The top of the blue bar represents the mean score for the Desired level, the bottom of the blue bar represents the mean score for Minimum, and the red circle represents the mean score for perceived level. The chart indicated that perceived level of services provided by PTAR was less than the minimum of level that required by the postgraduate and undergraduate students. The information control dimension only reached it's minimum level of service expected by respondents. Meanwhile, in the other dimensions, the red circle was located at the outside of the blue bar. As shown in this figure the largest gap between the red circle and blue bar was the library as a place of LibQUAL dimension. Hence, TAR Puncak Perdana Library must take more serious effort in improving the plan for this kind of dimension rather than the other dimensions.

Reliability of LibQUAL instrument

Most of the previous studies on the reliability of the LibQUAL instrument have shown the evidence of a stable factor structure and internal consistency of the scores across multiple contexts. One of them was done by Kyrillidou & et al. (2003). Reliability coefficients were usually greater than the recommended level of 0.7, and the factor structure replicated well when used in different library settings. Table 9 shows the reliability test of the minimum, desired and perceived service level for postgraduate, undergraduate and overall respondents. Those reliability tests resulted with the "Alpha value" of above 0.7, indicating that the results were reliable and valid.

Table 9: Reliability Test of the Perceived Level for Each Dimension for Undergraduate and Post Graduate Students

Dimension	"Alpha" value
Service affect	0.933
Information control	0.881
Library as Place	0.827

It can be concluded that overall, each of LibQUAL dimension has reached the minimum of 0.7 and above, indicating that the results of this study were reliable and valid to represent the respondents of this study.

RECOMMENDATIONS FOR PTAR PUNCAK PERDANA LIBRARY (PTAR)

Based on the findings and conclusions of the study, it is recommended that the PTAR Puncak Perdana, proposed to the library management the following aspects:

Library Facilities

As the results show the most critical service and the most critical LibQUAL dimension was library as a place. Hence, the results of the survey revealed the importance of the library facilities and the environment which have the greatest impact on the users. The library space was insufficient to accommodate the increasing enrolled number of students at PTAR Puncak Perdana. The small space increases the noise levels, especially during tests and examinations seasons. It is highly recommended that the library managers and the University administration embark on a practical project to resolve the space problem and make better use of the existing space in the library. It is important to take into account that the number of users is growing each year and the library has to accommodate sufficient resources, space and a conducive environment to users. Users need more space for individual and group activities. It was also recommended that the library provides discussion rooms convenient for group discussion without interrupting other students.

It is further recommended that the layout of study carrels and desks be revisited because discussion desks are too close to study carrels and this affects those users who need a silent environment to study. It is highly recommended that the library makes return slips available to students and this could eliminate the problem of users' uncertainty when they have returned their books or not. Staff needs to be extra cautious when the system is down and the circulation librarian needs to develop a reliable mechanism to mitigate human error at the issue desk.

Library Staffing

The study has indicated that staffing issues are the challenge at the TAR Puncak Library. The lack of professional librarians, especially after the working hours poses a problem to staff and students. It is strongly recommended that the library recruits additional professional librarians. In the mean time, the library staff should attend communications skills, customer care, and people skills workshops. Users expressed their dissatisfaction with staff services especially those staffs who were not helpful and friendly.

Library Collection

A recommendation to this area is to review the collection development policy with the relevant stakeholders and address the critical needs of the users. Priorities need to be given on revisiting certain services. For example, managers should embark on an information needs assessment in order to establish the type of materials that is in demand. Outdated books must be weeded out and subject librarians must inform management concerning the gaps in the collection and the need for the latest editions. Acquisition of books through the publishers directly is another mechanism to get more value from the funds available. Librarians must keep abreast with the curriculum changes in the faculties in order to make appropriate recommendations to the acquisitions department. Financial constraints are a barrier but careful budgeting and planning can make it possible to improve the current collection development.

Information Retrieval

Many users have expressed their concern regarding information retrieval. They needed assistances regards to relieving with retrieving the appropriate sources of information and were totally lost in the library. They were not well equipped to search the Online Public Access Catalog (OPAC) which is simply a bibliographic tool. Users do not have sufficient information skills to achieve their results independently. It is highly recommended that the library conduct a compulsory credit course in information literacy programme. This programme could train users on searching skills, retrieving and evaluating print and electronic media and should ultimately encourage users to maximize the resources of the library. Librarians will have to keep abreast with the current teaching and learning methodologies and focus on skills transfer in a structured platform.

Access to electronic resources

It is recommended that professional librarians investigate this critical area of access to electronic sources, since many users are not able to effectively navigate to locate information for their research in the simplest and most efficient way. Training sessions for staff and students must regularly be conducted to ensure proper skills are acquired by users.

Access to information

It is recommended that the library opening hours during weekends be reviewed as well. Students needs must be heard and their views are important for the library to

evaluate its services. It is recommended that a student representative/s be part of the library committee. In this way, more comments, suggestions and needs will reach the library for the overall improvement and success as a user-centred library services.

The result produced through this study could be used to improve library and information services and for the betterment of the library profession. It could also serve as a contribution to the body of knowledge in the area of user satisfaction on library's contribution and its services to users.

CONCLUSION

The post graduate and undergraduate students' perceptions towards service quality provided by PTAR Puncak Perdana is complex. They have their own perceptions, depending on situation and surrounding that they have been through in the past and currently. This study consists of service quality that applied to the gap LibQUAL model. This model is an analytical approach in measuring customer perceived and desired on providing service quality. The analysis and results show that the services quality level on the each aspects which determine at PTAR Puncak Perdana overall is less satisfied. This is based on the comments and suggestions from some of the respondents. However, the level of customers satisfaction on services provided by PTAR Puncak Perdana show that the users were likely to be satisfied. PTAR Puncak Perdana needs to improve and enhance the services and be sensitive to the needs of their customers. It must take into consideration the quality from the students' perspectives and not from management perspectives only. PTAR Puncak Perdana also must identify advantages and disadvantages of service quality aspects at an organization, thus they more easier classified amount of resources in contribute and enhancement of service quality to fulfill the need of their users. As the worst dimension of LibQUAL was library as place, the library management must take priori attention to this kind of service provided by PTAR Puncak Perdana in providing a convenience place for users to do their own activities independently. The results of the study could assist the library authority to improve its services and find out its weaknesses and strengths in the various aspects of services quality to improve in the respective sections. The library should pay attention to its entire service to develop those services identified as problematic. The library must give full attention for the services that were not located in the area of zone of tolerance, especially the 10 items that were identified.

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